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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,507	06/29/2004	Peter Lurkens	DE 020010	4384

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EXAMINER

VY, HUNG T

ART UNIT	PAPER NUMBER
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2163

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/500,507	Applicant(s) LURKENS, PETER	
	Examiner Hung T. Vy	Art Unit 2163	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-14 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is a response to the Applicant's amendment submitted on 04/27/2006. In virtue of this amendment, claims 1- 14 are now pending in this applicant. Upon reconsideration, the Applicant's arguments filed on 04/27/2006 have been fully considered but they are not persuasive (see response below).

Claim Rejections - 35 U.S.C. § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, and 8-14 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Nilssen (U.S. pat. 4,949,015) in view of Jungreis et al. (U.S. Patent No. 6,535,403).

With respect to claim 12, Nilssen discloses in electronic circuit for operating a high-pressure lamp in at least two modes, a first half bridge (Qa1,Qa2) and a second bridge (Q1b,Qb2) connected in parallel and the improvement comprising: second means for operating the first half bridge, whereby the first half bridge and the second half bridge operate independently of each other (See column 4, line 61-68), but Nilssen does not disclose a filter coupled to the output of the first half bridge circuit, a resonant circuit coupled to the output of the second half bridge circuit. However, Jungreis et al. discloses a filter (L_1C_1) coupled to the output of first half bridge circuit ((Q_1Q_2)) and a resonant circuit (L_2) coupled to the output of a second half bridge circuit (Q_3Q_4). It would have been obvious to one of ordinary skill in the art at the time the invention was

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made to modify the electronic circuit of Nilssen by arranging the filter and resonant coupled to the first and second half bridge in order to generate a pulse width modulation output voltage having a distorted output voltage waveform and compensate for the distorted output voltage waveform response to the ripple current since such an arrangement of the filter and resonant circuit for the state purpose has been well known in the art as evidenced by the teaching of Jungreis et al. (see column 1, line 65-68 and column 2, line 1-5).

With respect to claims 1, 8-9 and 12-14, Nilssen discloses all limitations recited in claim 12 except for the first filter includes a first coil coupled to the output of the first half bridge and the resonant circuit includes a second coil coupled to the output of the second half bridge characterized by a first capacitor coupled between the first coil and either the reference potential (-) or the operating potential (+) and second capacitor coupled between the second coil and either the reference potential (-) or the operating potential (+) or in parallel to the high pressure lamp. However, Jungreis et al. discloses the first filter includes a first coil (L1) coupled to the output of the first half bridge (Q1, Q2) and the resonant circuit includes a second coil (L2) coupled to the output of the second half bridge (Q3,Q4) characterized by a first capacitor (C1) coupled between the first coil (L1) and either the reference potential (-) or the operating potential (+) and second capacitor (C2) coupled between the second coil (L2) and either the reference potential (-) or the operating potential (+) (See fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the circuit of Nilssen by arranging the first filter includes a first coil (L1) coupled to the output

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of the first half bridge and the resonant circuit includes a second coil coupled to the output of the second half bridge characterized by a first capacitor coupled between the first coil and either the reference potential (-) or the operating potential (+) and second capacitor coupled between the second coil and either the reference potential (-) or the operating potential (+) in order to restore a substantially pure sinusoidal output voltage waveform to the output of a converter, regardless of the load current level or power level for the stated purpose has been well known in the art as evidenced by teaching of Jungreis et al. (See column 1, line 40-43).

With respect to claim 10, Jungreis et al. discloses with the same structure as claim invention so the system will provide the same function as invention.

With respect to claim 11, Jungreis et al. discloses the claimed invention except for voltageless switching. It would have been obvious to one having ordinary skill in the art at the time the invention was made to different kind of switching, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

4. Claims 2-4 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Nilssen (U.S. pat. 4,949,015) in view of Jungreis et al. (U.S. Patent No. 6,535,403) as applied to claim 1, in view of Haas et al. (U.S. Patent No. 5,712,536).

With respect to claims 2-4, Nilssen and Jungreis et al. disclose all of the claimed as expressly recited in claim 1, except for the third capacitor being connected between the output of the half bridge and either operating potential (+) or reference potential (-)

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and in that a fourth capacitor is connected between the operating potential (+) and the output of the first half bridge, Haas et al. discloses the third capacitor C_{s2} and fourth capacitor C_{s1} is connected between the output of the half bridge S_1, S_2 and either operating potential (+) or reference potential (-) (See fig. 3). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Jungreis et al. and Nilssen to have the third capacitor as taught by Haas et al. The motivation for doing so would have been to provide third capacitor and fourth capacitor is connected between the output of the half bridge and either operating potential (+) or reference potential (-) in order to have constitutes the voltage on boost third capacitor.

5. Claims 5 and 7 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Nilssen (U.S. pat. 4,949,015) in view of Jungreis et al. (U.S. Patent No. 6,535,403) as applied to claim 1, in view of Pogadaev et al. (U.S. Patent No. 6,369,526).

With respect to claim 5, Nilssen and Jungreis et al. disclose all limitation of invention except for the current sensor and comparator device. However, Pagadaev et al. disclose current sensor 8 and comparator device 6. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Nilssen and Jungreis et al. by arranging the current sensor for generating a current sensor signal which represents the value of the current through the first coil and comparator device as taught by Haas et al. in order to effectively control the current supplied to the load or lamp.

With respect to claim 7, Pogadaev et al. disclose a delay device (See column 2, line 47-50).

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6. Claim 6 rejected under 35 U.S.C. 103 (a) as being unpatentable over Nilssen (U.S. pat. 4,949,015) in view of Jungreis et al. (U.S. Patent No. 6,535,403), and further in view of Pogadaev et al. (U.S. Patent No. 6,369,526), as applied to claim 5, in view of Black, Jr. et al., U.S. Patent No. 5,831,426.

With respect to claim 6, Nilssen, Jungreis et al. and Pogadaev et al discloses all of the claimed limitations as expressly recited in claim 5 except for a magnetoresistive sensor. However, Black, Jr. et al discloses the magnetoresistive sensor as current sensor (See column 2, line 32). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify Nilssen, Jungreis et al. and Pogadaev et al. to have current sensor as magnetoresistive sensor as taught by Black, Jr. et al. in order to provide more accurate representations of the input currents. Further more, It would have been obvious to one having ordinary skill in the art at the time the invention was made to different kind of current sensor, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Response to Arguments

7. Applicant's arguments filed on 04/27/2003 have been fully considered but they are not persuasive. The applicant's arguments about the topic 1-6 in page 2 are not persuasive because Nilssen discloses clearly in column 4, line 61-68 that "the full – bridge inverter fig. 1 actually consists or two half-bridge inverters either of which can be made to **operate independently** of the other". A non-operative state is independent

as Nilssen discloses above. The claims do not require two half-bridge have to operative at the same time.

The applicant's arguments about the 2 topics of Jungreis et al. in page 3 are not persuasive because Jungreis et al. discloses the resonant circuit as L1, C1 and L2, C2. A circuit that contains inductance, capacitance, and resistance of such values as to give resonance at an operating frequency based the definition of "resonant circuit" (MC Graw-Hill Encyclopedia of Science & Technology online).

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung T. Vy whose telephone number is 571-2721954. The examiner can normally be reached on 8.30am - 5.30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571 272 1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

H.V
June 26, 2006.

A handwritten signature in black ink, appearing to read "Don Wong", with a stylized, looping flourish at the end.

DONWONG
SUPERVISORY PATENT EXAMINER